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Evaluation of osteopontin in combination with other bone turnover markers for the assesment of osteoporosis in menopausal women

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Abstract

Introduction: Osteoporosis, a disease characterized by low bone mass and microarchitectural deterioration of bone tissue, has an important impact on the lives of postmenopausal women, owing to the increased risk of fractures. Although bone mineral density (BMD) is the most common tool used to assess fracture risk in these patients, a significant change in BMD usually requires more than a year to take place, without any role in therapy monitoring. Biochemical markers of bone turnover are early indicators of bone loss, fracture risk and intervention threshold. Osteopontin, a glycoprotein has been implicated in bone remodeling by activating the resorption process. Combination of osteopontin with classical bone turnover markers can enhance the confidence of predicting fracture risk and outcome of therapy.

Methods: Enzyme-linked immunosorbent assay technique was used to measure serum osteopontin, osteocalcin, bone alkaline phosphatase (bALP), collagen type 1 cross linked telopeptide (CTX) and urinary hydroxyproline.

Results: Osteopontin was positively correlated with osteocalcin ($r=0.82$), bALP ($r=0.76$), CTX ($r=0.62$) and hydroxyproline ($r=0.49$) and it was negatively correlated with BMD ($r=-0.71$) indicating significant correlation ($p<0.001$). The osteopontin and osteocalcin combination showed highest sensitivity and specificity. 6 months after antiresorptive therapy 40-60% fall was observed in the level of these bone turnover markers while there was no statistically significant change in BMD.

Biography

Sara Reza has completed her degree of medicine in 2009 with a number of awards and distinctions. She worked as a house officer in general medicine and surgery for one year. After which she passed her Fellowship of College of Physicians and Surgeons (FCPS) part one examination and commenced her training for the four year program in discipline of chemical pathology. Currently she is third year resident at Quaid-e-Azam Medical College, Pakistan. She is also working as Incharge Chemical Pathology laboratory at the same institute catering 1800 bedded hospital, Bahawal Victoria Hospital, Pakistan. Sara is also serving as the assistant editor of newsletter “THE SPECTRUM” of Pakistan Society of Chemical Pathologists (PSCP). She has participated in various conferences and recently her two research articles have been published in reputed journals.